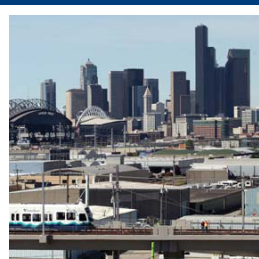


# EAST LINK PROJECT

## FINAL ENVIRONMENTAL IMPACT STATEMENT

### Executive Summary



SEATTLE



MERCER ISLAND



BELLEVUE



OVERLAKE



REDMOND



CENTRAL PUGET SOUND  
REGIONAL TRANSIT AUTHORITY



July 2011

**EAST LINK LIGHT RAIL TRANSIT PROJECT  
SEATTLE, WASHINGTON**

**FINAL ENVIRONMENTAL IMPACT STATEMENT**

Submitted pursuant to  
The National Environmental Policy Act (NEPA) (42 U.S.C. 4322 (2)(c))  
and the State Environmental Policy Act (SEPA) (Ch. 43.21 C RCW)  
by the

**U.S. DEPARTMENT OF TRANSPORTATION  
FEDERAL TRANSIT ADMINISTRATION**

and

**CENTRAL PUGET SOUND REGIONAL TRANSIT AUTHORITY (SOUND TRANSIT)**

and

**WASHINGTON STATE DEPARTMENT OF TRANSPORTATION  
(For SEPA)**

In cooperation with

**FEDERAL HIGHWAY ADMINISTRATION  
CITY OF SEATTLE  
CITY OF MERCER ISLAND  
CITY OF BELLEVUE  
CITY OF REDMOND  
KING COUNTY  
U.S. ARMY CORPS OF ENGINEERS  
U.S. COAST GUARD**

6/15/2011

Date of approval



R. F. Krochalis, Regional Administrator  
For Federal Transit Administration, Region 10

6/15/11

Date of approval



Perry Weinberg, Director, Office of Environmental  
Affairs and Sustainability  
For Central Puget Sound Regional Transit Authority

6/14/2011

Date of approval



Megan White, Director of Environmental Services  
For Washington State Department of Transportation

## Segment C: Downtown Bellevue

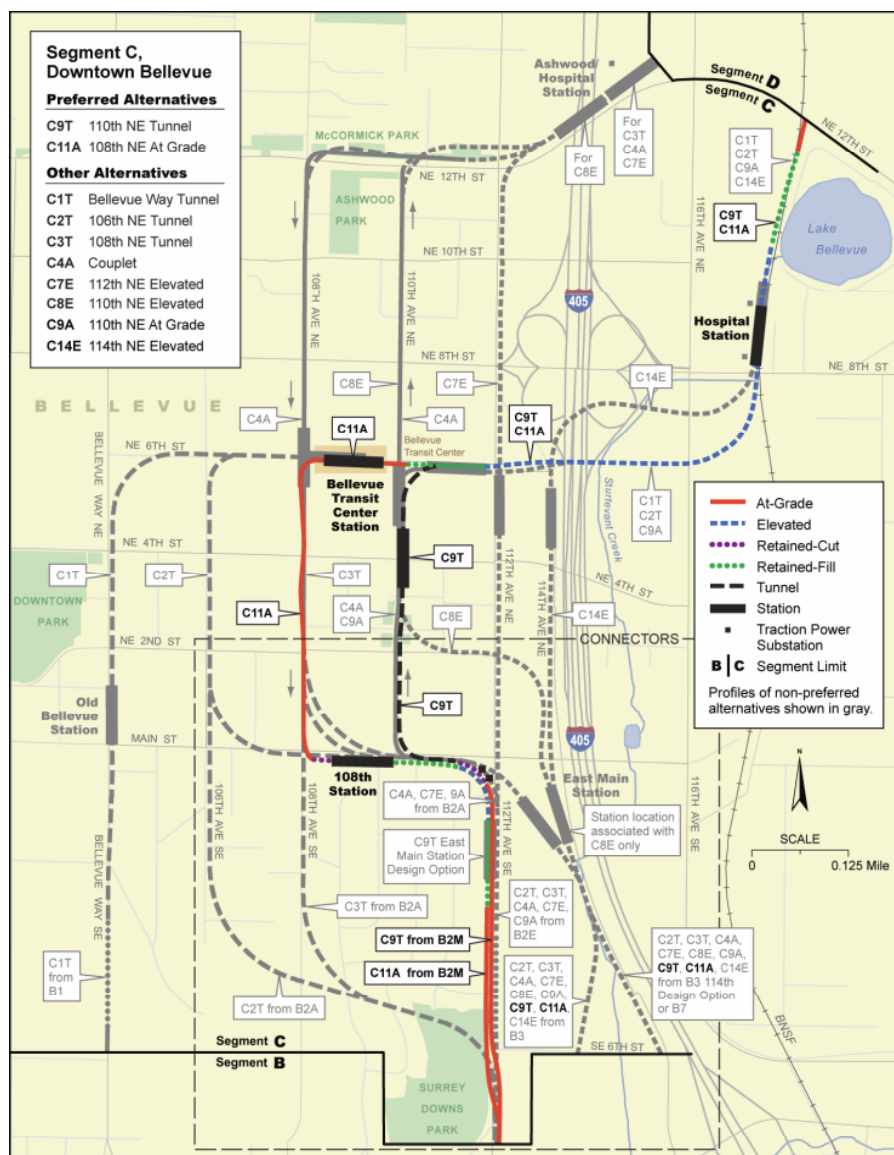
Segment C travels between approximately SE 6th and NE 12th Streets. The segment transitions from the primarily residential and commercial area of south Bellevue to the dense, urban central business district of Downtown Bellevue, a major regional urban center. Key destinations in Segment C are Bellevue's downtown core and transit center and the Overlake Hospital and Group Health medical centers on the east side of I-405. The City of Bellevue's downtown plan anticipates adding approximately 27,000 housing units and 77,000 jobs between 2000 and 2030. The Hospital or Ashwood/Hospital Station could be an interim terminus.

### Alternatives

There are ten alternatives in Segment C:

- Preferred 108th NE At-Grade Alternative (C11A)
- Preferred 110th NE Tunnel Alternative (C9T)
- Bellevue Way Tunnel Alternative (C1T)
- 106th NE Tunnel Alternative (C2T)
- 108th NE Tunnel Alternative (C3T)
- Couplet Alternative (C4A)
- 112th NE Elevated Alternative (C7E)
- 110th NE Elevated Alternative (C8E)
- 110th NE At-Grade Alternative (C9A)
- 114th NE Elevated Alternative (C14E)

There are two preferred alternatives in this segment, one with an at-grade profile (*Preferred Alternative C11A*) and one with a tunnel profile (*Preferred Alternative C9T*). ST2 provides funding for an at-grade or elevated alternative in Segment C. Additional funding sources would be required for the Sound



Transit Board to select a tunnel alternative in this segment.

Because of the dense development in Downtown Bellevue, potential construction staging areas have been identified in this segment, and impacts associated with these areas have been assessed. Although these staging areas are included in property acquisition impacts, portions of these areas would be available for redevelopment after construction.

### Components

**Old Bellevue Station:** This underground station serves C1T only.

**108th Station:** This retained-cut station serves *Preferred Alternative C11A* only.

**East Main Station:** This station serves routes connecting from Alternatives B3, B3 - 114th Design Option, or B7. This station would be in a retained cut for Alternatives C2T or C3T, or elevated for *Preferred Alternative C9T*, Alternatives C4A, C7E, C8E, or C9A. With *Preferred Alternative C9T* from B2M, an at-grade East Main Station Design Option on 112th Avenue SE would replace the SE 8th Station in Segment B.

**Bellevue Transit Center Station:** This station serves all alternatives, with elevated bridges for Alternatives C7E and C14E; at-grade for *Preferred Alternative C11A* and Alternatives C4A and C9A; and underground for all tunnel alternatives.

**Hospital Station:** This elevated Hospital Station serves *Preferred Alternatives C11A* and *C9T* and Alternatives C1T, C2T, C9A, and C14E and would not preclude development of a pedestrian or trail connection over NE 8th Street that would be designed and constructed by others. Potential interim terminus.

**Ashwood/Hospital Station:** This elevated station, serves Alternatives C3T, C4A, C7E, and C8E. Potential interim terminus.

**Traction Power Substation Locations:** Substations would be located at Main Street and 112th Avenue NE

(*Preferred Alternatives C11A, C9T*), the Hospital Station (Alternatives C1T, C9A, C14E), or the Ashwood/Hospital Station (Alternatives C3T, C4A, C7E, C8E).

### Connectors to Segment B

**From 112th Avenue SE:** *Preferred Alternative C9T* and *Preferred Alternative C11A* connect from *Preferred Alternative B2M*. Alternatives C2T and C3T connect from B2E. Alternatives C4A, C7E, or C9A connect from both B2E and B2A alternatives.

**From District Courthouse:** Alternatives C2T or C3T connect from Alternative B2A via tunnel under Surrey Downs Park.

**From Bellevue Way:** Alternative C1T uniquely connects from Alternative B1 via Bellevue Way NE.

**From Alternative B3 and B3 - 114th Design Option or Alternative B7:** These connectors follow similar routes south of Main Street along 114th Avenue SE to the East Main Station before crossing Main Street to all Segment C alternatives except Alternative C1T. These connectors would not include an East Main Station for *Preferred Alternative C11A* and C14E.

## Comparison of Segment C Alternatives

The at-grade alternatives (*Preferred Alternative C11A*, C9A, and C4A) would have similar ridership, cost, and cost-effectiveness. The tunnel alternatives (*Preferred Alternative C9T*, C1T, C2T, and C3T) would have the middle to high-end range of ridership but also the highest estimated costs, which makes them less cost-effective. *Preferred Alternative C9T* is the shortest, least expensive, and most cost-effective of the tunnel alternatives. Tunnel alternatives present the greatest construction risk. Alternative C8E would have the highest ridership of the elevated alternatives, and Alternative C14E would have the lowest.

Alternative C1T would require the most residential displacements, while *Preferred Alternative C9T* and Alternatives C9A, C2T, and C3T would have the fewest business displacements. Generally, connectors from 112th Avenue SE (B2M, B2A, B2E) would have higher displacements but lower costs than other connectors. All noise and vibration impacts can be substantially mitigated, except for a few instances of residual vibration impacts for *C11A, C9T*, C4A, C8E, C9A, and C14E. Long-term visual impacts would only occur with C3T, C4A, C8E, and C9A.

Construction impacts in Segment C would include lane closures, dislocating buses from the Bellevue

Transit Center, utility relocation, noise, vibration, dust, truck traffic, and associated impacts on businesses. Tunnel construction would require longer construction periods than elevated and at-grade portions. Bellevue Transit Center would be closed during construction for C1T, C2T, C3T, and partially or fully closed for the *Preferred Alternatives C11A* and *C9T*. *Preferred Alternatives C11A* and *C9T* would affect landscaping and portions of the Courthouse parking of Surrey Downs Park, but C9T would also affect a portion of the Courthouse building during construction. The connection from Alternative B2A to tunnel Alternatives C2T and C3T would require construction staging at the current District Court location at the north end of Surrey Downs Park, whereas connections from B2A for other Segment C alternatives would only affect the street-side landscaping. After construction, the park would be restored. Alternatives that cross I-405 at NE 12th Street (Alternatives C3T, C4A, and C8E) would occupy much of McCormick Park, which would be restored and possibly enlarged after construction, but there would be a residual visual impact. Construction of *Preferred Alternative C11A* and Alternatives C2T, C3T, and C4A could temporarily change the setting of the potential Surrey Downs historic district.

**TABLE ES-5**  
Comparison of Segment C Alternatives

Features		Alternatives									
		Preferred C11A	Preferred C9T <sup>a</sup>	C1T	C2T	C3T	C4A	C7E	C8E	C9A	C14E
<b>Number of Stations</b>		3	2 to 3	3	2 to 3	2 to 3	2 to 3	2 to 3	2 to 3	2 to 3	2
<b>Estimated Cost</b> (millions, 2007 \$)		\$555 to \$690	\$790 to \$1,025	\$1,405 to \$1,615	\$1,115 to \$1,365	\$975 to \$1,260	\$535 to \$705	\$435 to \$600	\$615 to \$705	\$465 to \$645	\$495 to \$575
<b>2030 Daily Ridership</b>	Segment boardings <sup>b</sup>	8,000 8,000	7,000 8,000	9,000	8,500	9,000	8,000	7,000	8,000	7,500	5,500
	Total East Link ridership <sup>b</sup>	49,000 49,000	50,000 51,000	52,500	52,000	52,500	49,500	50,500	51,500	48,500	48,500
<b>Travel Time through Segment</b> (minutes)		10	6	5	5	4	11	4	4	9	4
<b>Length</b> (miles)		2.0 to 2.1	1.7 to 1.8	1.9	2.1 to 2.2	1.8 to 2.0	1.6 to 1.7	1.4 to 1.5	1.6 to 1.7	1.7	1.3
<b>Comparative Cost-Effectiveness</b> - annualized cost divided by annual segment ridership in 2030		\$5.60 to \$6.25	\$7.95 to \$9.30	\$12.90	\$10.60 to \$12.05	\$8.50 to \$10.70	\$5.75 to \$7.30	\$4.70 to \$6.80	\$5.85 to \$6.30	\$5.40 to \$5.95	\$6.95 to \$7.25
<b>Construction Risk<sup>c</sup></b>		Moderate	High	High	High	High	Moderate	Low	Low	Moderate	Low
<b>Environmental Impacts</b>											
Residential Displacements (# of housing units) <sup>d</sup>		0 to 46	0 to 46	91	0 to 12	7 to 19	8	0	2	0 to 1	0
Business Displacements (# of employees) <sup>d</sup>		39 to 40 (330 to 380)	17 to 18 (160 to 370)	21 (250)	13 to 20 (170 to 240)	15 to 22 (180 to 270)	36 to 37 (490 to 550)	29 to 30 (670 to 730)	33 (750)	17 to 18 (170 to 230)	24 (390)
Full/Partial Property Acquisitions <sup>d</sup>		22 to 28/ 30 to 33	12 to 18/ 21 to 22	16/ 40	8 to 27/ 17 to 20	17 to 36/ 12 to 15	28 to 29/ 25 to 29	4 to 5/ 13 to 18	11/ 21	11/ 15 to 18	11/ 13
Decrease in Visual Quality		No	No	No	No	Yes	Yes	No	Yes	No to Yes	No
Hazardous Material Sites		2	2	7	3	2	2	0	0	2	1
Noise-Impacted Receptors (number after mitigation <sup>e</sup> ) <sup>d</sup>	Traffic-related	0	0	18 (0)	0	0	0	0	0	0	0
	Light Rail-related	184 to 204 (0)	119 to 140 (0)	100 (0)	100 to 179 (0)	26 to 105 (0)	439 to 450 (0)	208 to 282 (0)	425 (0)	199 to 241 (0)	148 (0)
Vibration - Impacted Buildings (number after mitigation)		6 (1)	3 to 8 (1)	2 (0)	0	0	7 (2)	0	6 (2)	6 (3)	3 (1)
Groundborne Noise - Impacted Buildings (number after mitigation) <sup>d</sup>		0	1 (0)	1 (0)	0 to 1 (0)	1 to 12 (0)	0	0	0	0	0

**TABLE ES-5 CONTINUED**  
Comparison of Segment C Alternatives

Features		Alternatives									
		Preferred C11A	Preferred C9T <sup>a</sup>	C1T	C2T	C3T	C4A	C7E	C8E	C9A	C14E
Wetlands: permanent/temporary (acres)		0	0	0	0	0	0	0	0	0 to < 0.1/0 to 0.1	0 to < 0.1/0 to 0.1
Wetlands Buffer: permanent/temporary (acres) <sup>d</sup>		0 to 0.1/0 to 0.1	0 to 0.1/<0.1 to 0.1	0	0 to 0.1/0 to 0.1	0 to 0.1/0 to 0.1	0 to 0.1/0 to 0.1	0 to 0.1/0 to 0.1	0.1/ 0.1	0 to 0.1/0 to 0.1	0.1/ 0.1
High-Value Wildlife Habitat Loss (acres) <sup>d</sup>		0	0 to 0.3	0	0 to 0.2	0 to 0.2	0 to 0.2	0 to 0.2	0	0	0
Park Impacts – area in acres before mitigation <sup>d</sup>	Permanent	0 to 0.5	0.1 to 0.6	0	0 to < 0.1	0.9	0.9 to 1.4	0 to 0.4	0.2	<0.1	0
	Temporary	0 to 0.6	0.3 to 0.8	0	0 to 5.7	1.8 to 7.5	1.6 to 2.0	0 to 0.4	0.9	0.2	0
Historic Properties Potentially Impacted		1	0	0	1	1	1	0	0	0	0
Utility Relocation		High	High	High	High	Medium	High	Low	Low	High	Low
Intersections Not Meeting Local Standards and Operating Worse than No Build Alternative (No. after mitigation)		3 (0)	1 (0)	2 (0)	1 (0)	2 (0)	3 (0)	1 (0)	4 (0)	3 (0)	0 (0)

<sup>a</sup> The range shown includes the number of impacts if the C9T-East Main Station Design Option is selected

<sup>b</sup> Ridership reported for each alternative is based on the representative East Link route (a combination of Alternatives A1, B3, C4A, D2A - NE 24th Design Option, and E2) where the only portion that changes is the alternative in that segment. Ridership for each preferred alternative when connected to the preferred alternatives in other segments is also shown in italics. See Chapter 3, Transportation Environment and Consequences, for more details.

<sup>c</sup> Construction risk considers risks related to geology, utilities, traffic and safety relative to the other alternatives, see Chapter 6.

<sup>d</sup> The range shown represents the range of impacts with the different possible connectors

<sup>e</sup> Some impacts mitigated with building sound insulation, which does not reduce exterior noise levels.



## Preferred 110th Avenue NE Tunnel Alternative (C9T)

**Preferred 110th NE Tunnel Alternative (C9T)** connects with *Preferred Alternative B2M*, or connects with Alternatives B3, B3 - 114th Design Option, or B7, which would include the East Main Station. From *B2M*, *C9T* begins on the east side of 112th Avenue SE, then transitions to the west side at SE 6th Street before turning west into a tunnel portal on Main Street. *C9T* then turns north under 110th Avenue NE to the Bellevue Transit Center Station at NE 4th Street. *C9T* continues north to NE 6th Street, turns east and exits the tunnel portal, transitions to an elevated profile in the center of NE 6th Street, and then crosses to the north side of NE 6th Street to pass over 112th Avenue NE, I-405, and 116th Avenue NE. *C9T* then turns north along the former BNSF Railway corridor, crosses NE 8th Street to the elevated Hospital Station within the former BNSF Railway corridor.

The C9T – East Main Station Design Option is a station option on 112th Avenue SE with a connection from *Preferred Alternative B2M* that would replace the SE 8th Station in Segment B.

### Evaluation Summary

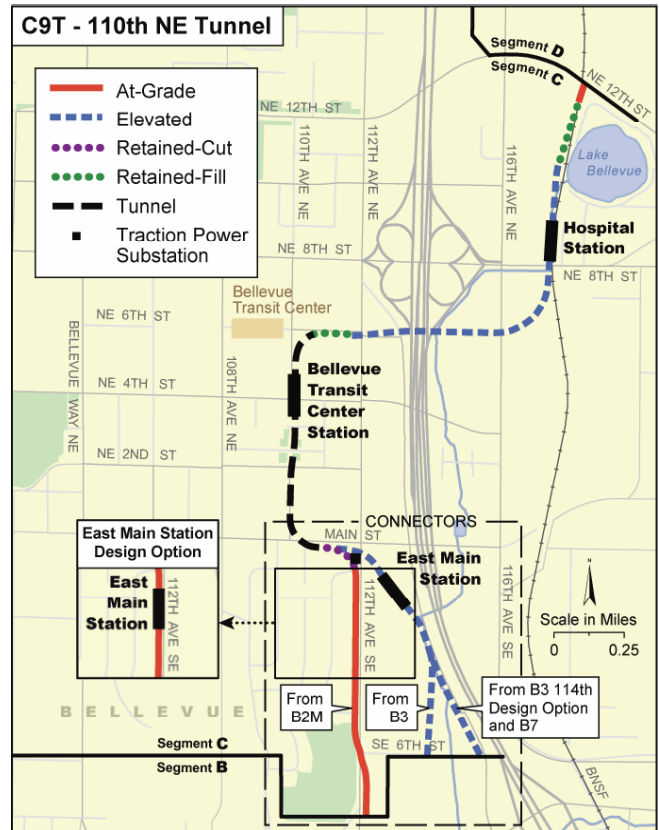
**Markets Served by Stations:** Bellevue city center, City Hall, Bellevue Transit Center, Meydenbauer Center, NE 6th Street pedestrian corridor, Overlake Hospital and Group Health medical centers east of I-405.

**Estimated Cost:** \$790 million to \$1,025 million.

**Ridership:** Forecasts predict 7,000 to 8,000 daily boardings at the stations in this alternative in 2030.

**Transportation Impacts:** *Preferred Alternative C9T* from *B2M* includes an at-grade signalized crossing at 112th Avenue SE and SE 6th Street. SE 1st Street would be closed at 112th Avenue SE and SE 4th Street would be realigned to the 112th Avenue SE/SE 6th Street intersection to maintain access to the neighborhood. One intersection would not meet intersection operation standards and have greater delay than the No Build Alternative. Operational traffic management strategies would be proposed at this location to improve the efficiency of the downtown roadway system.

**Potential Environmental Impacts During Operation:** *Preferred Alternative C9T* from *B2M* would result in 46 residential and 17 business displacements. With a connection from either Alternatives B3 or B7, *C9T* would result in no residential and 18 business displacements. Realigning SE 4th Street would require permanent acquisition of 0.5 acre of Surrey Downs Park. Land acquired along 112th Avenue SE would be landscaped and replace land used in Surrey Downs Park. A Bellevue Transit Center Station entrance would acquire a portion of the NE 2nd Pocket Park; however, this park would



remain usable as open space. Although *C9T* would require property acquisitions along Main Street and 112th Avenue SE, it would not affect the potential Surrey Downs historic district. It would result in 119 to 140 noise impacts, all of which Sound Transit would mitigate. Vibration would affect three buildings with *Preferred Alternative C9T* and eight buildings with *C9T - East Main Station Design Option*. With both scenarios, one vibration impact would need to be further addressed during final design. Groundborne noise would impact one building, but this impact would be fully mitigated.

**Temporary Impacts During Construction:** Detours and lane closures from cut-and-cover tunnel construction would increase congestion, affect residents and businesses along 110th Avenue NE between Main and NE 6th Streets; however, traffic and access would be maintained to the extent possible. Adjacent businesses would experience temporary adverse impacts from changes in circulation, access, noise and dust. 112th Avenue SE, Main Street, and NE 6th Street would also likely have partial road closures. The Bellevue Transit Center would be partially or fully closed, requiring transit service modifications. Cut-and-cover construction would require underground utilities to be either relocated or suspended to minimize disruptions in service and soil settlement.

**Construction Risks:** Construction risk would be high.